DOCTOR OF PHILOSOPHY IN NEUROSCIENCES

Neurosciences Graduate Programs

The graduate program in neurosciences at the University of Kansas is a degree-granting program. Students are admitted directly into the program. The program is coordinated by the Lawrence campus of the university - with strengths in the behavioral, biological, chemical, and pharmaceutical sciences - and the Medical Center campus in Kansas City - with strengths in all the biomedical and clinical sciences. Each student is asked to indicate the campus on which he or she would like to be considered for admission. Students in this program should expect to receive a Ph.D. degree in neurosciences. In exceptional circumstances, the program also offers an M.S. degree in neurosciences.

The program appeals to students who want to teach and/or do research in a university or do research in a pharmaceutical/biotechnology company or government laboratory. Students who are interested in this field wish to work out individual programs spanning a great breadth from molecular and cellular neurobiology to organism-based neurophysiology, behavioral neurobiology, and cognitive neuroscience. Students take advantage of the many research and training opportunities available at two campuses of a major research university. Our students can look forward to personal development in an atmosphere that fosters strong collaborative activities as well as independent scholarship. If this type of program fits your professional training expectations, we invite you to join us.

Applications and Program Administration

The administrative offices for the interdisciplinary neuroscience program are in School of Pharmacy in Lawrence and at the Hemenway Life Sciences Innovation Center in Kansas City.

All application materials are reviewed by faculty committees on the Lawrence and Kansas City campuses. Students should have B.A. or B.S. degrees in one of the following fields: anthropology, behavioral sciences (psychology, human development), biology, chemistry, engineering, neuroscience, or pharmacology. Preference is given to students who have completed courses in introductory biology and at least one course in advanced biology topics such as biochemistry, physiology, microbiology, molecular biology, and courses in introductory and organic chemistry or in calculus and physics. The graduate curriculum requires background knowledge in these fields. Students who do not have sufficient training will be asked to complete the appropriate courses before being admitted. The program requires submission of the standard GRE scores with all applications, three letters of recommendation, and an essay by the applicant about his or her career goals, i.e. why he or she wishes to become a neuroscientist. Selection of graduate students is based on grade-point average, Graduate Record Examination scores, letters of recommendation, and evidence of previous experience in research. The minimum standard acceptable for admission to the graduate program is a grade-point average of 3.0. Inquiries and applications are welcome at any time. Most students enter the program in August. Full consideration for August admission can be assured for all applications received before January 15th.

The University of Kansas accepts only on-line applications. The fees are:

- Domestic student on-line application fee: $65
- International student on-line application fee: $85

The deadline for receipt of application materials to the Neuroscience Graduate Program is January 14, 2017 in consideration for admission to the Fall 2017 semester. Institution Code: 6871 / Neuroscience Program Code: 0213

Online application (http://graduate.ku.edu/ku-graduate-application)

For further information, contact

The University of Kansas
Neuroscience Graduate Program
C/O Dr. Hal Dobrowsky
School of Pharmacy, Ste 2001-D
2079 HLSIC
Lawrence, KS 66047
Telephone: (785) 864-3531 or (785) 864-3893
E-mail: dobrowsky@ku.edu or psteffan@ku.edu

or

KUMC Online application (http://www.kumc.edu/school-of-medicine/neuroscience.html)

The University of Kansas Medical Center
Neuroscience Graduate Program
C/O Dr. Doug Wright
2079 HLSIC
3901 Rainbow Blvd.
Kansas City, KS 66160
Telephone: (913) 588-2713
E-mail: dwright@kumc.edu (http://www.kumc.edu/school-of-medicine/neuroscience.html)

Ph.D. Degree Requirements

The neuroscience curriculum is subdivided into core courses that all students must complete and electives representing the 2 major specializations,

- Cell and Molecular Neuroscience and
- Cognitive and Systems Neuroscience.

The core curriculum includes research rotations in 2 laboratories of the student’s choice during the first year. Laboratory rotations offer first-hand research experience. Students complete 2 rotations in faculty research laboratories in the first year. Laboratories are selected by the student and the co-directors. After the rotations, each student chooses a research advisor and begins an independent research project.

Students also receive training in the responsible conduct of research and teaching in the neurosciences. For the Ph.D., the student completes the core curriculum as well as research skills training, comprehensive oral examination, preparation of a dissertation, and final oral examination and defense of the dissertation.

Note: Contact your department or program for more information about research skills and responsible scholarship, and the current requirements for doctoral students. Current Lawrence and Edwards Campus policies on Doctoral Research Skills and Responsible Scholarship are listed in the KU Policy Library.
## Core Curriculum for the Ph.D. in Neurosciences

### Year 1

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<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>BIOL 750</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Cognitive and Systems Neuroscience course</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 752</td>
<td>3</td>
<td>Lab rotations</td>
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<tr>
<td>Lab rotations</td>
<td>NURO 800</td>
<td>2</td>
</tr>
<tr>
<td>NURO 799</td>
<td>2</td>
<td>Research skill: 1 lecture course or 1 laboratory course</td>
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### Year 2

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<tr>
<td>NURO 801 (offered in the fall every odd-numbered year)</td>
<td>1</td>
<td>Completion of written and oral comprehensive examination</td>
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<tr>
<td>Cell and Molecular Neuroscience course</td>
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<td></td>
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<tr>
<td>First elective for Cell and Molecular Neuroscience or Cognitive and Systems Neuroscience</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Second elective for Cell and Molecular Neuroscience or Cognitive and Systems Neuroscience</td>
<td>3</td>
<td></td>
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<tr>
<td>NURO 799</td>
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### Year 3

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### Year 4

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<tr>
<td>NURO 999</td>
<td>1-11</td>
<td>NURO 999</td>
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</table>

Total Hours: 43-83

Students must:

- Complete 1 core course from Cognitive and Systems Neuroscience;
- Complete 1 core course from Cell and Molecular Neuroscience;
- Complete 1 core course from General Neurobiology;
- Take Bioethics or NURO 801 Issues in Scientific Integrity; and
- Receive training in effective oral communication and teaching by enrolling in 1 semester of NURO 800 Neuroscience Teaching Principles, which includes a teaching experience.

### Neuroscience Courses

#### Cognitive and Systems Neuroscience (9)

- BIOL 701 Topics in: _____ (Brain Disorders and Neurological Disorders) 3
- NURO 844 Neurophysiology 3

#### Cell and Molecular Neuroscience (9)

- BIOL 673 Cellular and Molecular Neurobiology 3
- NURO 775 Chemistry of the Nervous System 3
- NURO 848 Molecular Mechanisms of Neurological Disorders 3

#### General Neurobiology (10)

- NURO 846 Advanced Neuroscience 5
- NURO 710 Advanced Neurobiology 3
- NURO 847 Developmental Neurobiology 2

#### Neuroscience Seminar (2)

- NURO 799 Neuroscience Seminar Series 2

#### Scientific Integrity (1)

- NURO 801 Issues in Scientific Integrity 1

#### Teaching Experience (2)

- NURO 800 Neuroscience Teaching Principles 2

Continued enrollment in the neuroscience seminar is required, and students present at least 2 seminars during their graduate careers. In consultation with a 5-member faculty advisory committee including at least 3 members of the neuroscience program, each student chooses electives that provide training relevant to the research goals.

All students must complete a research skill. Commonly used areas are radiation biology and radiation safety, cell culture methodology, techniques of electron and confocal microscopy, molecular biology laboratory training, computer science training, statistics, and training in electronics and instrumentation.

After the first 2 years, students take the comprehensive oral examination. This consists of a research proposal in the general area of the doctoral research, written in NIH format, and an oral examination on the proposal and on general knowledge in neuroscience and related fields.